Class Environmental Assessment for Fishery Reclamation

Policy and Planning Secretariat

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PREFACE

In 1980 the Ministry of Natural Resources submitted the Class Environmental Assessment for Fishery Reclamation to the Minister of the Environment for review and approval under the Environmental Assessment Act. In 1985 the Class Environmental Assessment was accepted by the Minister as having met the requirements of the Act. Before approval of the Class Environmental Assessment was given, the Minister referred it to the Environmental Assessment Advisory Committee.

The Committee reviewed the Class Environmental Assessment and invited public submissions on the document. Upon completing its review the Committee made several recommendations regarding approval and how the Class Environmental Assessment could be improved.

Staff of the Ministry of Natural Resources and the Ministry of the Environment worked co-operatively to develop conditions of approval of the Class Environmental Assessment which incorporated the Committee's recommendations. Once the draft conditions were prepared, Ministry of Natural Resources and Ministry of the Environment staff jointly presented the conditions to the Committee. The Committee reviewed the draft conditions and made further recommendations which were subsequently incorporated by the Ministry of the Environment into the final conditions of approval.

On May 6, 1987 the Class Environmental Assessment for Fishery Reclamation was approved under the Environmental Assessment Act. A condition of approval required that the Ministry of Natural Resources revise the Class Environmental Assessment to include the conditions of approval. What follows is the revised Class Environmental Assessment for Fishery Reclamation as required by Order-in-Council No. 1139/87.

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INTRODUCTION

This document is a class environmental assessment (Class EA) which is to be used in the planning of all fishery reclamation projects. Included in this Class EA are fishery management activities which involve the elimination of certain fish species which are contributing to a degraded or low quality fishery, and the subsequent introduction of one or more desirable fish species for the purpose of improving the fishery.

This Class EA applies to fishery reclamation projects carried out by the Ministry of Natural Resources (MNR) and by parties in association with MNR (e.g. Community Fisheries Involvement Program). Projects may be carried out on either ponds or lakes. For the purpose of the Class EA a pond is any waterbody with no outflow and having a surface area of less than five (5) hectares.

No more than four (4) lake reclamation projects may be undertaken throughout the province in any year. Lake reclamation, by either mechanical or chemical means, is to be considered experimental in nature and involve special additional studies. The planning and implementation of lake reclamation undertakings shall be overseen by a joint MNR/Ministry of the Environment (MOE) Committee. By November 1990 the Committee shall submit a report of its findings to the Director, Environmental Assessment Branch, MOE.

This Class EA is divided into three distinct parts. Part I, The Undertaking, describes the activity of fishery reclamation by mechanical and chemical means, and the information which must be considered in project planning to meet the content requirements of subsection 5(3) of the Environmental Assessment Act. Part II, Field Environmental Planning Procedure (FEPP), describes the planning process which must be employed by MNR when undertaking a fishery reclamation. Finally, Part III, Administration, describes how the Class EA shall be administered by MNR.

The remainder of this Introduction highlights the essential features of the Class EA, and the linkages between those features. Further, the connections between the Class EA and the accompanying environmental assessment reference manuals are given.

FEATURES OF THE CLASS EA

I. The Undertaking

As mentioned above, Part I describes and defines the undertaking. Additionally, Part I further defines the purpose and rationale for fishery reclamation; identifies alternatives to fishery reclamation and alternative methods of carrying out a fishery reclamation; identifies the general environmental effects which can be expected to be generated by fishery reclamation; and identifies appropriate environmental protection techniques to prevent and/or mitigate net or residual environmental effects. The information presented in Part I will be used by MNR staff on the planning, implementation and monitoring of fishery reclamation undertakings.

II. Field Environmental Planning Procedure

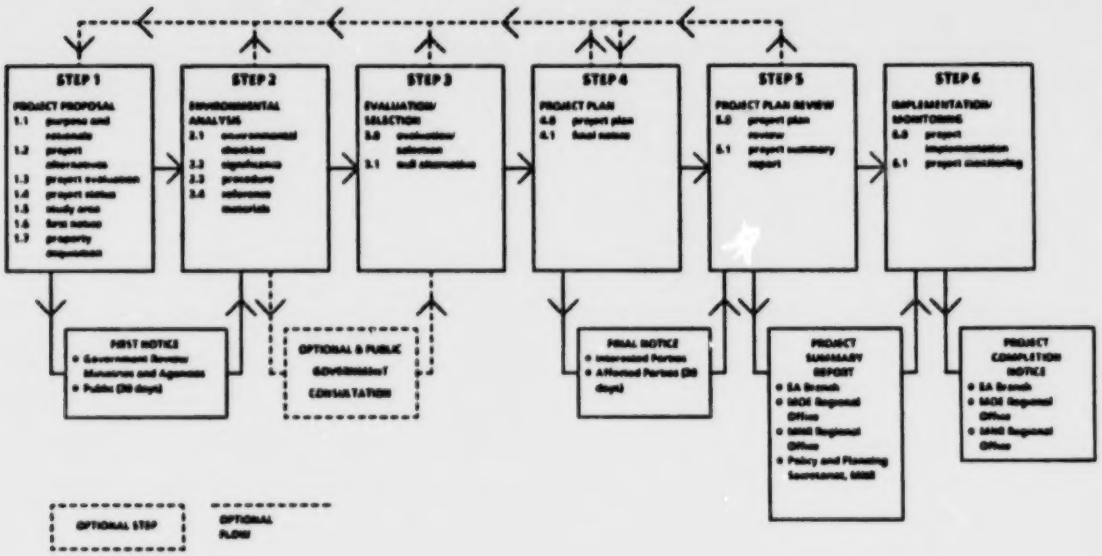
The focus of the Field Environmental Planning Procedure (FEPP) is on heightening the awareness of the nature of problems and developing the most appropriate means of solving those problems. To this end, the following have been identified as the goals of the FEPP:

1. Identification and Evaluation of Feasible Alternatives When Proposing Projects;
2. Identification of Environmental Concerns Based on Site Inventory and External Input;
3. Evaluation and Selection of the Most Appropriate Alternative Based on Potential Environmental Effects, Cost, Effectiveness, and Feasibility;
4. Determination, Implementation and Monitoring of Environmental Quality Guidelines and Mitigation Techniques; and
5. Involvement of the Public and External Government Review Agencies in the Planning Process.

The Field Environmental Planning Procedure must be followed in combination with the information presented in Part I.

The Field Environmental Planning Procedure is a linear process whereby individual tasks are completed in a step-by-step manner leading to project acceptance and implementation. Note, however, that the FEPP contains feedback mechanisms whereby information obtained at one step may require returning to previous steps to reconsider previous decisions in light of new information. The Field Environmental Planning Procedure is schematically presented in Figure 1, Field Environmental Planning Procedure (see below).

FIGURE 1 - FIELD ENVIRONMENTAL PLANNING PROCEDURE



III. Environmental Assessment Procedures Manual

Copies of the Environmental Assessment Procedures Manual are available in all MNR district offices. The Manual describes the status of MNR programs and activities under the Environmental Assessment Act. Through the use of policy directives and procedural bulletins, district responsibilities for complying with environmental assessment requirements are explained. Therefore, all staff with environmental assessment responsibilities must become familiar with the Manual. If necessary, clarification of bulletins and directives should be sought from the MNR regional office.

IV. Level of Detail

The level of detail which must be presented in each of the six steps of the FEPP is left to the judgement of the District Manager. The level of detail will vary from project to project and will depend on a number of variables including: project alternative and magnitude; affected environment; and the degree of public and external agency interest and participation in project planning. By using the FEPP as the framework, the level of detail may vary so long as all the elements within each step are addressed.

V. Opportunity for "Bump-up"

Projects which are included in the Class Environmental Assessment for Fishery Reclamation may be "bumped-up" to individual environmental assessment status under the Environmental Assessment Act. Bump-up may occur if any member of the public or government agency (including MNR) feels that the potential environmental effects of a project addressed by the Class EA will not be adequately evaluated by the procedures described in the Class EA. A request can be made by that concerned party to the Minister of the Environment to bump-up the project. For details concerning the appropriate action to follow in the event of a bump-up request refer to Part III, Section C.

VI. Emergency Situations

In some instances emergency situations may arise which require immediate action and waiving of the FEPP. An appropriate solution should be determined through consultation between the Regional Directors of MNR and MOE. For further information refer to Appendix A.

VII. Integration With Work Planning

Responsibility for integrating the Class EA with annual work program planning rests with the District Manager. The initiator of the project (e.g. Program Supervisor) should be aware of this consideration and provide advice as required. Further information on the integration of the Class EA with work planning is presented in Appendix B.

VIII. Assistance

If clarification of any aspects of this handbook, The Construction and Mitigation Handbook for MNR Class EA Projects or the Environmental Assessment Procedures Manual for MNR Activities is required, the appropriate regional staff responsible for environmental assessment or the staff of the Environmental Assessment Unit, Policy and Planning Secretariat should be contacted.

PART I

THE UNDERTAKING

INTRODUCTION AND SUMMARY

Fishery reclamation, as carried out by the MNR involves the elimination of certain fish species which are contributing significantly to a degraded or low quality fishery; and the subsequent introduction of one or more desirable fish species for the purpose of improving the fishery. Because the projects are relatively small in scale, recur frequently, and have a generally predictable range of potential environmental effects, MNR has taken the class environmental assessment approach for dealing with fishery reclamation.

This description of the undertaking examines fishery reclamation in terms of the requirements of the Environmental Assessment Act, discussing the purpose, rationale and alternatives to fishery reclamation, as well as the anticipated environmental effects and guidelines for mitigating those effects. The Field Environmental Planning Procedure as described in Part II below, is the planning and decision-making process to be used by district staff when proposing a fishery reclamation project. All fishery reclamation projects, including those under the Community Fisheries Involvement Program must follow that process.

Fishery reclamation is only one technique used by MNR to manage Ontario's fisheries resources. Implementation of a variety of management activities is required to fulfill the provincial goals and objectives for fisheries management. Provincial fisheries policies, higher order objectives and framework for decision-making at the field level are available from Fisheries Branch, MNR.

Through fishery reclamation undesirable fish species may be eliminated by mechanical means or by use of a piscicide. The application of a fish toxicant to a body of water requires the presence of a licensed exterminator and prior approval by the Ministry of the Environment under the Pesticides Act, through a request by MNR for a permit to perform a water extermination (see Appendix C, Application for a Permit to Perform a Water Extermination). At present, only rotenone-base fish toxicants are approved for use in Ontario.

Fish are frequently stocked to establish a naturally reproducing fish population or for put-and-take purposes. The stocking effort is subject to MNR's fish stocking policies and procedures (available from Fisheries Branch, MNR).

All activities included as part of a fishery reclamation undertaking must be planned using the Field Environmental Planning Procedure. For example, if access road construction or fish stocking in new waters is a constituent activity of an undertaking, the environmental implications of those activities must be considered along with those of fishery reclamation.

1.0 General Description of Fishery Reclamation Activities

Fishery reclamation is one management technique considered and sometimes used by MNR to resolve a specific problem or achieve an objective. The activity involves the removal of all coarse or undesirable fish from the waterbody prior to restocking with a desirable species.

Fishery reclamation is usually carried out on headwater lakes or waterbodies which experience little or no inflow or outflow and which have public access. Under the Community Fisheries Involvement Program, small ponds (usually less than 5 hectares) on private land are reclaimed regularly for use as rearing ponds. If one or more rare species of fish are known to exist (e.g. aurora trout, deepwater cisco, brindled madtom, tadpole madtom) in the water body either through previous records or through the lake survey, fishery reclamation is prohibited.

A fishery reclamation project consists of four parts:

1. Pre-treatment planning;
2. Treatment phase;
3. Fish stocking phase; and
4. Post-operational monitoring.

The pre-treatment planning procedure ensures alternatives to the undertaking are considered and the project is implemented in an environmentally sound manner. Post-operational monitoring will determine the effectiveness of the project and any additional guidelines taken to reduce negative residual environmental effects of the activity.

The treatment phase involves eliminating certain fish species which are known to be contributing significantly to a degraded or low quality fishery. Fish toxicants are most commonly used for this purpose. Mechanical means such as netting and partial draw down of the lake are possible alternatives. The treatment phase is usually carried out in the fall when water temperatures are relatively high and the waterbody is undergoing vertical mixing of its waters, resulting in a uniform vertical temperature profile.

The stocking phase of a fishery reclamation project is generally initiated the following spring, although in some cases stocking may be delayed until the fall or second spring following the treatment phase.

1.1 The Purpose of Fishery Reclamation

Fisheries management activities are undertaken by the MNR to: a. achieve a fisheries management objective; or b. resolve an identified problem.

Fisheries management problems which fishery reclamation by itself or along with other management techniques may resolve include:

a. A fish population heavily infested with parasites;

b. A stunted fish population;

c. A decline in the elimination of desired fish species resulting from one or more of the following:

   i. previous introductions of fish species not indigenous to a lake with subsequent predation or competition pressures imposed on the resident fish populations;

   ii. excessive exploitation of desired fish species thus permitting less desired species to dominate the fish community;

   iii. degradation of habitat so as to favour less desired species; and

d. Failure of an existing stocking program to provide adequate fishing opportunities and a quality fishing experience. For example, the species presently being stocked may have proven incapable of establishing a self reproducing population, and other species have taken over. All fish must be eliminated before any species can be introduced in anticipation of achieving the objective.

A fishery may be reclaimed to establish a naturally reproducing fish population, to provide a put-and-take fishery, or to provide an annual short-term rearing facility (pond) for walleye fry. Put-and-take fisheries are usually established and maintained in or near populated areas, in response to a high demand for recreational fishing opportunities. In addition to the fishing opportunities they provide, put-and-take fisheries redirect angling pressure from overharvested lakes capable of supporting naturally reproducing fish populations.

The immediate purposes of fishery reclamation are: a. to eliminate completely all undesirable fish species in an waterbody; and b. to introduce successfully into the treated waterbody one or more desired fish species.

1.2 Alternatives to Fishery Reclamation

Fishery reclamation is one technique used to manage the fish resources in Ontario. Alternative management strategies may include one or a combination of several fisheries management techniques. Alternatives to fishery reclamation generally include: a. use of another fisheries management technique, or b. changing or abandoning the management objectives to be achieved by implementing the project.

1.2.1 Use of Another Fisheries Management Technique

Alternative fisheries management techniques which may be considered as alternatives to fishery reclamation include:

a. Supplemental Stocking:

Where a stocked fish species does not naturally reproduce, repeated stocking is necessary to maintain the desired fishery. Supplemental stocking is defined as the introduction of a fish species already present in the body of water. This activity is exempt from the Environmental Assessment Act.

b. Introduction of Another Fish Species:

Introduction of a fish species not present in the body of water under consideration, but present elsewhere in the province requires application of the Field Environmental Planning Procedure as described in the Class EA for Fish Stocking in New Waters. The introduction of a fish species not present in the province (an exotic species) requires an individual environmental assessment. In circumstances where an exotic species is being considered, direction must be sought from the Director, Policy and Planning Secretariat, MNR.

c. Introduction of A Predator Fish Species:

The introduction of a predator species is exempt under the Environmental Assessment Act if the predator is present in the waterbody but in insufficient numbers to have a significant effect on the undesirable species. If the predator to be introduced is not part of the existing fish community, the stocking effort will be subject to the environmental assessment requirements for fish stocking in new waters as stated in section 1.3.1 (b) above.

d. Habitat Improvement in Lake or nearby Waterbody:

This alternative involves the improvement or development of suitable spawning, rearing or feeding habitat to favour the desirable fish species. The improvement or development of spawning and rearing habitat may be subject to the environmental assessment requirements for shoreline and streambank stabilization, and water-related dredging and filling activities. Refer to the Class EA Procedures binder for a further description of EA requirements for fisheries rehabilitation projects.

e. Fish Stocking Program in Nearby Waters:

The introduction of fish into nearby waters may involve supplemental stocking or stocking of a new species. The overall undertaking may also involve providing access to the waterbody being stocked. This alternative can satisfy the demand or achieve the objective on a regional basis rather than on a site specific basis.

f. Instituting Angling Regulations:

Management by establishing angling regulations include temporary closure of a lake to fishing, adjustment of angling seasons, reduction of catch limits for the desired species to offset selective angling pressure, and prohibiting use of bait fish.

g. Promotion of Less Desirable Species:

The development and implementation of a program to overcome learned perceptions and attitudes towards less desirable sport species which may provide a similar angling opportunity and angling experience.

1.2.2 Changing or Abandoning Management Objectives

In some instances another objective, although less desirable, may be adopted. An example is designating a waterbody as a bait fish lake rather than as a recreational fishery. This alternative, however, may not always be feasible.

If it is determined that a fishery reclamation project is undesirable, and no alternative can reasonably be identified, the District Manager may choose to abandon the proposal entirely.

1.3 Alternative Means of Carrying Out a Fishery Reclamation

In addition to the choice among different fisheries management activities, the alternative means for carrying out a fishery reclamation must be considered and evaluated. Alternative means of eliminating the undesirable fish species in a waterbody designated for fishery reclamation include: a. application of a piscicide; b. netting; and c. complete or partial drawdown of the waterbody.

1.3.1 Application of a Piscicide

The use and application of fish toxicants is controlled by the Pesticides Act which is administered by the Ministry of the Environment. At present the only fish toxicants approved for use under this Act are rotenone-base products of powder form. Rotenone acts as a fish toxicant by blocking respiratory processes in the gill filaments of fish. The chemical may be applied to a waterbody in powder form, pre-mixed with water and sprayed on, dripped on, or pumped into the waterbody.

The application of a piscicide to a body of water requires the presence of a licensed exterminator and prior approval by the Ministry of the Environment under the Pesticides Act. The request for a permit to perform a water extermination is initiated by MNR.

1.3.2 Netting

The removal of undesirable fish species by intensive netting (e.g. trawling or seining) is ineffective in completely eliminating an undesirable fish population as it is difficult to catch even a large portion of the fish in the lake using this method. The main reason is that all lakes possess areas which are inaccessible to netting, such as weedy or marshy areas, potholes, rocks or logs. Since only a portion of the population can be removed, the benefits to more desirable fish species through a reduction in predation and competition pressure may be realized only temporarily if the undesirable fish species is able to reach its previous population size through successful natural reproduction.

1.3.3 Complete or Partial Drawdown

Complete or partial drawdown of a waterbody to facilitate the removal of all undesirable fish species could result in greater habitat destruction and subsequent loss of most aquatic organisms than that resulting from piscicide application. In addition, property owners

adjacent to the waterbody may be inconvenienced through loss of water supply, water-oriented recreation opportunities, business opportunities and aesthetics. The period of inconvenience is likely to be longer if drawdown is employed rather than a piscicide. Such an alternative may have serious implications not only for the immediate waterbody environment but also for other areas in the watershed. Therefore, complete drawdown has very limited potential as a fishery reclamation technique. Partial drawdown, however, may be used in some cases to facilitate the application of the fish toxicant.

2.0 POTENTIAL ENVIRONMENTAL EFFECTS ASSOCIATED WITH FISHERY RECLAMATION

The concerns described below address those aspects of the environment which may potentially be affected by fishery reclamation.

2.1 Resource Use Conflicts

Fishery reclamation is carried out on a waterbody with an unsuitable fishery. A sudden increase in good fishing opportunities may lead to resource use conflicts. Other uses of the waterbody include swimming, boating, water-skiing, viewing, etc. Instances of trespassing, damage to private or public property may increase with the number of users.

Users of the waterbody will be inconvenienced following piscicide treatment due to the temporary elimination of water-oriented recreational opportunities (e.g. swimming, fishing, boating, etc.). Private enterprises which are dependent on the waterbody for their livelihood may experience a short-term decrease in business. Water from a piscicide treated waterbody cannot be used for drinking or agricultural purposes until the chemical has detoxified. Note that rotenone-base fish toxicants seldom persist in the environment over two weeks (2 to 3 days under most conditions). However, depending upon water temperature, hardness of water, etc., this period could last up to several months.

Direct exposure to the piscicide may cause headaches, sore throats, sores on or numbing of mucous membranes, eye irritation, skin rash and loss of appetite. Some of these symptoms may occur by swimming in or drinking the treated water. Chronic intoxication has not been documented.

2.2 Deterioration of Aesthetic Quality

Concerns regarding the sites' aesthetics may arise due to the unpleasant odours and unsightliness of dead and decaying fish. While the sight and odours of the dead fish are unavoidable, measures can be taken to ensure the fish are removed and disposed of as quickly as possible.

2.3 Physical Suitability of the Waterbody

It is well known that the effectiveness of the piscicide treatment is influenced by the physical characteristics of the waterbody. If the bottom and shoreline contours of a lake are not suitable, the treatment will be less effective as not all undesirable fish can be eliminated.

2.4 Water Quality

Fishery reclamation does affect the quality of water for recreational and water supply purposes for some time following the treatment. Treated water is unsuitable for drinking, swimming, and agricultural purposes for a period of two weeks to several months, depending on the chemical breakdown of the piscicide.

Following piscicide treatment there may be a reduction in bottom water dissolved oxygen due to an increased biological oxygen demand (B.O.D.) from decomposing fish. This situation is rectified during turnover of the lake. An increase in nutrients from the decomposition of fish may subsequently result in increased algae growth if the season permits.

2.5 Effects on Aquatic Habitat

2.5.1 Effects of Piscicide Application

The application of a piscicide to a waterbody affects the lake's phytoplankton, invertebrates and vertebrates generally for a short time only. Where fish toxicant persists, the effects may be prolonged.

Generally the aquatic food organisms return after a very short time. Rapid regeneration of food organisms permits fisheries managers to consider fish stocking the following spring.

More specific effects of piscicide application include:

A. Plants

Immediate and Short-Term Effects:

- Partial to total elimination of certain species of phytoplankton with a return of these species after a short period of time if growing season permits.
- Increase in saprophytic organisms in decaying fish.
- No effect on rooted aquatic vegetation.

Effects the Following Year:

- Increase in primary production due to an increase in available nutrients through fish decomposition and a reduction in the number of fish grazers.

B. Invertebrates

Immediate and Short-Term Effects:

- Definite reduction of zooplankton and possible reduction of other species with a return of all species within 2 to 6 months depending on the species.
- Although benthic invertebrates may be reduced, recovery is very rapid.

Effects the Following Year:

- Expected increase in invertebrates due to an increase in primary production.
- Expected increase in aquatic insect populations through a decrease in the number of predator fish species especially if fish are not introduced in the fall after spring treatment.
- Expected increase in zooplankton but not necessarily to the population level which existed the previous year.

C. Vertebrates

Immediate and Short-Term Effects:

- Complete fish kill.
- No adverse effects on other vertebrates such as amphibians, reptiles, birds and mammals with the exception of hogs.
- Increase in food supply for scavenger species (e.g. snakes, turtles, sea gulls, raccoons).
- Reduction in fish and reptile predator pressure on amphibians through a short-term shift in food source (i.e. dead fish).

Effects the Following Year:

- Possible increase in reptile reproduction due to an increase in stored energy from previous year's increased available food supply.
- Possible increase in amphibian population due to a decrease in fish predator population, especially if not stocked the following spring.
- Possible fish kill of introduced species if rotenone is still present or if oxygen is depleted in bottom waters through organic decomposition.
- Possible shortage of food supply for introduced fish species if zooplankton population has been significantly reduced by previous treatment phase.

2.5.2 Habitat Suitability for Desired Fish Species

In some fishery reclamation projects the same desirable species are stocked each time following the removal of undesirable fish species. Nevertheless, a review of the stresses leading to the decline of the desired resident fish population should be completed with each reclamation project. The suitability of the introduced species to the local ecosystem must also be established. In addition, before fish are stocked, it should be determined that no piscicide is present in the waterbody.

3.0 ENVIRONMENTAL QUALITY GUIDELINES

Through implementation of the environmental quality guidelines presented below, environmental concerns associated with fishery reclamation will be minimized.

3.1 Resource Use Conflicts

PLANNING AND IMPLEMENTATION OF A FISHERY RECLAMATION MUST CONSIDER ALL PRESENT AND POTENTIAL ACTIVITIES ASSOCIATED WITH THAT WATERBODY, AND ANY POSSIBLE CONFLICTS.

Through the planning and implementation of the project, the project co-ordinator should consider the following:

1. Accessibility and mode of access;
2. Number of angling opportunities to be provided;
3. Type of angling opportunity to be provided;
4. Existing and potential uses of the waterbody;
5. Need for regulations (e.g. angling, activity areas); and
6. Method and extent of public notice and signage.

3.2 Aesthetic Quality

PROVISIONS MUST BE MADE TO COLLECT AND DEPOSIT IN A SUITABLE DISPOSAL SITE FISH WHICH HAVE SURFACED AND/OR WASHED ON SHORE AS A RESULT OF PISCICIDE TREATMENT.

Project planning and implementation considerations should include:

1. Methods for collection of dead fish;
2. Location and/or designation of a suitable disposal site;
3. Signage which indicates origin and duration of odours.

3.3 Physical Suitability of the Waterbody

THE PHYSICAL SUITABILITY OF A WATERBODY FOR PISCICIDE TREATMENT MUST BE DETERMINED AND DOCUMENTED BEFORE A FISHERY RECLAMATION CAN BE IMPLEMENTED.

The physical characteristics of a waterbody influence the success of the reclamation effort. Fishery reclamation using piscicides is most successful in lakes which have:

1. A minimum amount of floating bog materials, weed beds, turbidity and soft bottom areas;
2. No underground springs or inlets entering the lake;
3. A maximum depth of 6.1 meters as the rate of piscicide degradation is directly proportional to the intensity of light;
4. A well defined shoreline (e.g. no marshy or wetland areas which can inhibit adequate distribution of the piscicide and can serve as a refuge for fish attempting to swim away from the toxicant); and
5. A uniform bottom (e.g. absence of deep basins or potholes to allow for even distribution of the toxicant).

An aquatic habitat survey normally carried out prior to active fisheries management identifies the physical features, water quality and habitat suitability of a waterbody. The Fish and Wildlife Supervisor must determine whether the available information requires updating, and to what extent. Particular sections of the survey which will indicate suitability for piscicide treatment are echo sounding to produce transect and contour maps, and the shoreline cruise which includes identification and mapping inlets and outlets, bottom soil type, aquatic vegetation, resorts and cottages, etc. This information is summarized in Appendix D, MNR Lake Survey.

3.4 Water Quality

BEFORE A FISHERY RECLAMATION IS IMPLEMENTED THE SUITABILITY OF THE WATER FOR EFFECTIVE PISCICIDE TREATMENT AND SUBSEQUENT INTRODUCTION OF FISH MUST BE DETERMINED.

Piscicide treatment is most successful under the following circumstances:

1. Water temperature between 10 and 24 degrees celcius. As water temperature rises, the respiration rate of fish increases, which in turn, increases the uptake of the fish toxicant. However, at high temperatures toxicity may only last for 24 hours, resulting in rapid detoxification and poor distribution of fish toxicant.

2. pH values of 8 or less;

3. Alkalinity - calcium carbonate ($CaCO_2$) between 150 and 200 ppm;

4. Temperature profile - during fall turnover the vertical mixing is accentuated and eggs of undesirable spring spawners are not present. Such eggs may be resistant to the toxicant.

Water chemistry tests are carried out on waterbodies as part of the aquatic habitat inventory. These tests include secchi disc, water temperature profile, dissolved oxygen, alkalinity, etc.

To ensure that dissolved oxygen (D.O.) is not a constraining factor to the introduced fish, D.O. should be measured just before fall turnover in lakes that thermally stratify. In both cases this represents the critical time for D.O. Similarly, temperature in lakes that thermally stratify should be measured before and during overturn, and before breakup in lakes that do not thermally stratify.

In order to determine the minimum pH the stocked fish would be subjected to, the lake's pH and alkalinity should be measured as soon as the waterbody is free of ice. This factor could be critical in areas prone to receiving acidic precipitation.

3.5 Habitat Suitability For Desired Fish Species

FISH STOCKING MAY BE CARRIED OUT ONLY IN WATERBODIES WHICH CAN PROVIDE SUITABLE HABITAT CONSISTENT WITH THE STOCKING OBJECTIVE FOR THAT SPECIES.

By means of an aquatic habitat survey and review of past management practises including previous surveys and environmental assessment files of previous fishery reclamations, it can be determined what fish are presently in the waterbody, and which species the habitat can support.

Prior to stocking, it must be determined that the rotenone has detoxified. This may be accomplished by chemical analysis of water samples or by suspended cages of test fish. Chemical analysis may be requested from the Ministry of the Environment. Suspended cages should contain a sample of the fish species to be stocked.

The zooplankton which provide food for fish populations are normally restored to pre-treatment level by the spring following piscicide treatment. If there is some doubt as to the presence of zooplankton, fish stocking should be deferred until the fall or following spring, and a zooplankton sampling program should be scheduled.

4.0 MONITORING REQUIREMENTS

Monitoring is an integral part of this Class EA. The monitoring requirements described in sub-sections 4.1 and 4.2 below, and that described in step 6.2 of the FEPP are the absolute minimum requirements. Note that the results of the monitoring program must be written and sent to the Director, Environmental Assessment Branch, MOE and the Director, Fisheries Branch, MNR.

4.1 Monitoring Requirements for Ponds and Lakes

1. The waterbody will be sampled prior to, during and after treatment to determine the general parameters (temperature, pH, dissolved oxygen, alkalinity) of the water which may influence the lethality of rotenone and the rate of detoxification. The waterbody will not be considered safe until the water samples show no significant presence of rotenone;

2. The area will be cleaned up following the application of rotenone. The species and number of fish removed will be recorded and included in the Environmental Assessment File; and

3. Prior to restocking of the waterbody with the desired fish species, detoxification testing (in-situ fish bioassays) will be conducted.

4.2 Monitoring Requirements for Lakes

1. Prior to treatment with rotenone, a lake inventory will be carried out which will include a description of the desired fish species habitat, water quality, fish species present, and an evaluation of the limiting factors for the desired fish species; and

2. The Ministry of the Environment, regional office, must be provided with detailed information regarding how any outflow from the lake will be controlled during treatment and until such time as monitoring indicates no significant presence of rotenone.

PART II

FIELD ENVIRONMENTAL PLANNING PROCEDURE

FIELD ENVIRONMENTAL PLANNING PROCEDURE

STEP 1

1.0 Project Proposal

The Project Proposal is prepared in order to focus and guide the planning process. Developed by the Fish and Wildlife Supervisor (or his/her designate) responsible for the planning and implementation of the project, hereafter referred to as the project co-ordinator, the Project Proposal: describes the project and the reasons why it should be undertaken; and identifies realistic alternatives. Although planning is carried out by the project co-ordinator, the District Manager is responsible for all decisions made throughout the process.

The development of the Project Proposal will result in a written summary of the major headings presented in Steps 1.1 through 1.5 below. The Project Proposal may be sent directly to concerned or affected parties with the first notice (see Step 1.6 below), held for public review in the district office, or transformed for use in other public participation vehicles (e.g. displays). The approach to dissemination of the Project Proposal is left to the discretion of the project co-ordinator. However, the Project Proposal must be placed on the Environmental Assessment File (see Appendix G).

1.1 Purpose and Rationale

(a) Both the purpose and rationale will vary according to whether or not the proposal is in response to an existing problem or to fulfill an MNR objective.

(b) Define the purpose of the proposal so that the objective (desired result) is clearly stated (e.g. to improve upon reduced cold-water angling success in Blue Lake region). The purpose should clearly and concisely spell out what is going to be done.

(c) Clearly define the rationale (reason why) for the project. The rationale should include a description of the immediate and long-term need for the project.

1.2 Project Alternatives

(a) The project must be described along with any alternative projects which could reasonably be expected to achieve the same desired result.

(b) After the project alternatives have been identified and described, the project co-ordinator will provide the District Manager with a preliminary description of the cost, effectiveness, potential environmental effects, and feasibility of each project alternative. Figure 2, Project Comparison Matrix, suggests a means of presenting the preliminary description of project alternatives. Use of the Matrix is discretionary, the project co-ordinator may wish to employ a personally preferable means of describing project alternatives.

Figure 2: Project Comparison Matrix

ALTERNATIVE	COST	EFFECTIVENESS	FEASIBILITY	GENERAL ENVIRONMENTAL EFFECTS	REMARKS
A					
B					
C (etc.)					

(c) The information necessary to identify and describe project alternatives may be obtained from the description of the undertaking in Part I above, the Construction and Mitigation Handbook for MNR Class EA Projects, and the Environmental Assessment Files of previous projects. The project co-ordinator should consult other program supervisors for possible effects the project alternatives may have on their programs. Remember, in addition to the effect of the proposal on MNR programs, the project co-ordinator must provide a preliminary description of the perceived effects the proposal will have on external parties.

(d) Among the alternative projects must be the "null" or do nothing alternative. If this alternative is chosen (see Step 1.3 (b) below) the project proposal must be either redrafted, deferred or abandoned altogether. If the null alternative is rejected at this Step it must continue to be brought forward because circumstances may develop which require redrafting, deferment or abandonment at a later step in the process.

1.3 Project Evaluation

(a) After the project alternative have been described in terms of the criteria specified in section 1.2 above, the project co-ordinator will meet with the District Manager to compare and evaluate the relative merits of the project alternatives.

(b) The District Manager, after comparing and considering the advantages and disadvantages of the project and its alternatives, will determine if the project or one of its alternatives should be brought forward for further study. The District Manager's approval of the project and all reasons for rejecting the other alternatives must be documented by the project co-ordinator and included in the Project Proposal.

(c) The decision by the District Manager to continue planning the proposed project or one of its alternatives requires the project co-ordinator hereafter to identify and evaluate alternative means of implementing the project. However, should response to the First Notice (see Step 1.6 below) yield serious concern regarding the evaluation of project alternatives, or identify a potentially viable new project alternative, the project co-ordinator must return to Step 1.2 and re-commence the process.

1.4 Definition of the Study Area/ Identification of Alternative Means

(a) The project co-ordinator must describe and map the geographic area which may be influenced by all component activities of the project. Included in the description must be the administrative, technical and ecological constraints on the project; and clear identification of municipal fabric, land use, cultural and natural features.

(b) The level of detail required at this stage should provide, in the judgement of the project co-ordinator, an adequate overview of the area potentially affected. Detailed information on particular environmental components is required in Step 2, Environmental Analysis, below and will be discussed there.

(c) Upon completion of the study area description, the project co-ordinator in association with whomever he/she determines necessary, must identify all the alternative means (methods) of carrying out the project.

1.5 First Notice

(a) Once the study has been defined and alternative means have been identified, the first public notice shall be issued. The first notice must contain the following information:

1. The purpose of the project;
2. Location of the project;
3. An indication of the proposed timing of the project;
4. In the case of projects involving the use of a pesticide in lakes and ponds potentially used for swimming, bathing, or human consumption, information about the possible persistence of the pesticide;
5. How the public and government review ministries and agencies may have input to the planning process;
6. Notice of the right of the individual, group or other party to request that the project be subjected to an individual environmental assessment using the following wording: "Where you feel, after consulting with Ministry of Natural Resources staff, that serious environmental concerns remain unresolved, it is your right to request the Minister of the Environment require that the project be subject to the formal review and approval process under the Environmental Assessment Act";
7. A description of any present or pending related activities and an indication of their status under the Environmental Assessment Act;
8. A return date for comments (at least 30 days after the date the notice is given);
9. Name, address, and telephone number of an MNR contact person from whom additional information may be obtained.

(b) First notice must be sent by mail to the local Medical Officer of Health, individuals and groups who are users or potential users of potentially affected ground or surface waters, public agencies whose program interests may potentially be affected, and those parties requiring mandatory First Notice (refer to Figure 3, Mandatory First Notice Requirements). Notice to the public at large should be given by a means determined appropriate by the District Manager.

(c) If limited external interest in the project is anticipated by the project co-ordinator, a shortened response period (e.g. 15 days) may be specified for the final notice. If a shortened response is being considered for the final notice, this must be expressed in the first notice.

1.7 Property Optioning

(a) Options or agreements to sell which are required for the acquisition of property for the project may be pursued once the District Manager has given approval to proceed with project planning.

(b) All options and agreements must be conditional as no final acquisition or exercising of options can be made until final public notice is given and the period of public comment has elapsed (see Step 4.2).

(c) Not withstanding the condition stated in Step 1.7 (b) above, property may be acquired prior to Step 4.2 if hardship circumstances arise. Hardship circumstances occur when an owner wishes to sell property but is unable to do so because MNR project planning is incomplete.

FIGURE 3 - MANDATORY FIRST NOTICE REQUIREMENTS

MINISTRY/AGENCY/GROUP	NOTICES TO	NOTICE REQUIREMENTS
1. Natural Resources	Regional Office	- The Regional Director should be copied on all notices.
2. Environment	a. Environmental Assessment Branch b. Regional Office	- All notices must be sent to MOE in all cases.
3. Municipalities	Local & Upper Tier Municipalities	- Notice must be given to affected municipalities in all cases. In areas of the province without municipal organization, other legally constituted local agencies (i.e. planning boards and local service boards) may be notified if their area of jurisdiction may be affected.
4. Citizenship and Culture	Regional Office	- The Regional Archaeologist must be contacted in all cases to determine if the project may cause damage to historical or archaeological features.
5. Tourism & Recreation	Regional Office	- Notice must be sent to MTR in all cases.
6. Agriculture & Food	Regional Office	- Notice must be given if agricultural operations may be affected.
7. Niagara Escarpment Commission	Commission Office - Georgetown	- The Commission must be notified of all projects planned within its area of jurisdiction.
8. Transportation & Communications	Regional Office	- Contact must be made with MTC for all access road, access points and dam and dyke projects.
9. Northern Development and Mines	Regional Office	- Contact must be made for all projects proposed in Northern Ontario.
10. Indian Reserves	- Band Council - Federal Dept. of Indian & Northern Affairs	- Contact must be made if an Indian Reserve will or may potentially be affected.

STEP 2

2.0 Environmental Analysis

The Environmental Assessment Act requires that the residual environmental effects (positive and negative) that are expected to occur as a result of project implementation be described for all alternatives. After identification of all potential alternatives the project co-ordinator shall ensure a detailed Environmental Analysis is completed for each alternative.

The Environmental Analysis is a description (summary and display) of the nature, content and extent of the potential environmental effects of and external response to each of the alternatives. Therefore, included in the Environmental Analysis will be a list of all environmental effects as identified by MNR staff, a summary of all external response to the First Notice, and a list of all mitigation and environmental protection measures which may be utilized to reduce or avoid environmental deterioration. The outcome will be an Environmental Analysis Summary (See Step 2.3 below) which will be used to select the preferred alternative in Step 3.0, Evaluation and Project Selection.

2.1 Environmental Checklist

(a) The Environmental Analysis is carried out using the Environmental Checklist presented in Figure 4. The purpose of the Checklist is to assist the project co-ordinator and program supervisors in identifying and considering the range of possible environmental effects which may be generated by implementation of a project. Note that the Checklist is not an all encompassing listing and may not contain all of the possible environmental effects which may be raised by the public, external review agencies and MNR staff. Depending upon the problem at hand, it may be necessary to expand the Checklist to include additional environmental effects.

(b) To complete the Checklist, the list of environmental components along the left margin must be scanned for each alternative. It may be useful to complete a separate Checklist for each alternative. If an alternative has no affect (direct or indirect; see Step 2.2 (b) below) on a particular environmental component, then N/A (no affect) should be entered under the significance column adjacent to the environmental component. For the remaining environmental components, the significance of the effect the alternative will have on each affected component must be determined (see Step 2.2 below) and entered under the Significance column adjacent to the affected environmental component. Under the third column, Rationale for Significance, the specific reason why the particular level of significance was assigned must be described.

FIGURE 4: ENVIRONMENTAL CHECKLIST

FILE NAME/NUMBER:
PROPOSAL:
DISTRICT/REGION:
LOCATION:
(Lot, Concession, Twp.):
PROJECT CO-ORDINATOR:
DATE:

ENVIRONMENTAL COMPONENTS	SIGNIFICANCE			RATIONALE FOR SIGNIFICANCE
	High	Medium	Low	
A. LAND				
a. Land Use				
1. recreational				
2. forestry				
3. pasture				
4. agriculture				
5. mineral extraction				
6. industrial				
7. commercial				
8. residential				
9. waste disposal				
10. other				
b. Land Tenure				
11. patented				
12. crown				
13. licences				
14. claims				
15. leases				
16. Indian Reserves and treaty areas				
17. other				
c. Plans/Policies				
18. MNR Plans				
19. Official Plans				
20. Zoning by-laws				
21. Minister's zoning orders				
22. Policy Statements				
23. Other				
d. Services				
24. roads and railways				
25. utilities				
26. small hydro potential				
27. other				

ENVIRONMENTAL COMPONENTS	SIGNIFICANCE			RATIONALE FOR SIGNIFICANCE
	High	Medium	Low	
B. WATER				
1. surface water				
2. ground water				
3. water quality				
4. recharge area				
5. other				
C. FISH & WILDLIFE				
1. fish habitat				
2. spawning areas				
3. migration routes				
4. endangered species				
5. wildlife habitat				
6. wildlife corridors				
7. other				
D. BIOPHYSICAL PROCESSES				
1. flooding				
2. erosion/sedimentation				
3. slope stability				
4. soil compaction				
5. eutrophication				
6. food chains				
7. rare & unique species, ecosystems or landforms				
8. other				
E. SOCIAL CONCERNS				
1. health				
2. safety				
3. employment				
4. population				
5. human settlements				
6. noise, odour				
7. Indian Bands				
8. air quality				
9. other				
F. CULTURAL CONCERNS				
1. historical features				
2. archaeological potential				
3. scenic viewsheds				
4. cultural landscapes				
5. Indian Bands				
6. other				
G. TOURISM CONCERNS				
1. access				
2. aesthetic Appeal				
3. remoteness				
4. economic Value				
5. existing Tourist Operators				

(c) The Checklist and the necessary supporting materials (e.g. the Project Proposal) must be circulated to all program supervisors for their review and comment. When completing the Checklist the project co-ordinator and the program supervisors must refer to Part I above and The Construction and Mitigation Handbook for MNR Class EA Projects where appropriate.

(d) When identifying the array of potential environmental effects, the project co-ordinator must consider concerns received from the public and external review agencies in response to the First Notice. If not already identified, concerns raised by external parties should be included on the Checklist and assigned a significance level deemed appropriate by the project co-ordinator.

2.2 Determination of Significance Level

(a) The significance of the environmental effects which may result from implementation of a project must be determined. To determine the significance of a potential environmental effect the project co-ordinator, in consultation with other program supervisors, must review all comments received and evaluate the comments in terms of the definitions presented in Figure 5, Definitions of Significance Levels.

(b) When identifying and determining the significance of environmental effects, both direct and indirect effects must be included. Refer to Figure 6, Direct and Indirect Effects, for guidance when identifying and analyzing potential environmental effects.

2.3 Environmental Analysis Summary

(a) After the Checklist(s) have been completed and external comments recorded, the project co-ordinator must summarize the results. This summary, referred to as the Environmental Analysis Summary, must be completed for all alternatives and must contain the information listed in Figure 7, Environmental Analysis Summary. Note that although the information required to be contained in the summary is mandatory, the format of presentation is left to the discretion of the project co-ordinator.

Figure 5: Definitions of Significance Levels

Significance Level	Definition
High	A project action affects an environmental component in such a way as to seriously disturb the integrity, distribution, operation or abundance of the component and raises serious concerns among MNR staff, external reviewers, the public and other interested parties.
Medium	A project action affects an environmental component so as to bring about a disturbance but does not threaten the integrity, distribution, operation or abundance of the component as determined by MNR staff, external reviewers, the public and other interested parties. Short term effects associated with construction and operation of projects are classified as medium effects.
Low	A project action affects an environmental component in such a way that only a portion of the component is affected for a short period of time.

Figure 6: Direct and Indirect Effects

Effect	On the Project	On an Environmental Component
Direct Effect	As as result of an environmental component (e.g. due to thermal stratification, rotenone poorly distributed resulting in partial fish kill).	Caused by an action generated from the project (e.g. use of waterbody recreationalists impaired until detoxification).
Indirect Effect	As a result of an environmental component (e.g. return of undesirable fish species to waterbody after re-stocking	Caused by an action generated from the project (e.g. congestion of fishermen due to improved angling opportunities

(b) The level of detail of the Analysis is left up to the judgement of the project co-ordinator. However, the project co-ordinator must ensure that the level of detail provided will allow satisfactory evaluation and comparison of the potential environmental effects of each alternative by the District Manager, external review agencies and the public. Should a bump-up request be made to the Minister of the Environment, the level of detail should be such that MNR's position on the issue can be supported.

Figure 7: Environmental Analysis Summary

1. Identify the expected environmental effects and their estimated significance;
2. Indicate the potential for mitigation of the expected environmental effects;
3. Summarize the concerns raised by the public, government review agencies and others; and
4. Estimate the cost of construction and implelmentation.

2.4 Optional Public and Government Consultation

(a) As many of the projects proposed by MNR are of a small scale, public involvement beyond first and final notice (see Step 4.1 below) may not often be required. For those projects which may generate potentially serious environmental effects, or are sensitive to the degree that substantial public concern may arise, it may be necessary to further involve the public and government review agencies.

(b) The decision to undertake additional public involvement is to be made by the District Manager. The District Manager is also to decide upon the appropriate method (e.g. open houses, workshops, etc.) for additional public input.

(c) The purpose of the additional opportunity for public involvement is to present the results of the Environmental Analysis to those parties who responded to the First Notice and expressed serious concern over the Project Proposal. If the additional form of public involvement is simply an additional notice, a public response period determined by the District Manager must be specified (normally 30 days).

2.5 Environmental Assessment File

(a) As explained in the Introduction to the Class EA, the Environmental Assessment File is to be made available to any party upon request. Therefore, it is important that the File be orderly and up-to-date. At the conclusion of the Environmental Analysis the Environmental Checklists for all alternatives; all correspondence and records of verbal transactions; and summaries of all meetings must be included in the File. The Environmental Analysis Summaries are required for Step 3 below, but must be placed on the File after completion of Step 3.

STEP 3

3.0 Evaluation and Project Selection

In Step 2 above, detailed information regarding the various environmental attributes which may be affected by the alternatives was gathered and described. In this step, the advantages and disadvantages to the environment of all the alternatives must be evaluated. The alternative which best satisfies the purpose and rationale while minimizing environmental disruption will be chosen by the District Manager as the preferred alternative to be brought forward.

Evaluation is the interpretation and weighing of all information collected and analyzed, relative to a decision. The procedure is necessarily subjective. As no set formula exists to guide evaluation, the eventual selection of the preferred alternative is based on the judgement of the District Manager. But, when the decision is made, the relative importance placed on the potential environmental effects and kinds of external input received should be clearly stated with reasons for that importance given. This information should then be placed on the Environmental Assessment File by the project co-ordinator.

3.1 Evaluation of Alternatives

(a) The project co-ordinator shall evaluate all the alternatives using the Environmental Analysis Summaries. The evaluation will encompass a comparison of the following: i) the relative effectiveness of each alternative in achieving the stated objective; ii) the potential environmental effects which may be generated by each alternative; iii) the cost of construction and/or implementation; and iv) the feasibility of implementing each alternative.

3.2 Selection of the Preferred Alternative

(a) Once the project co-ordinator has completed the comparative evaluation of alternatives, the results are to be presented to the District Management Committee. After the Committee has reviewed and discussed the evaluation, the District Manager shall determine which of the alternatives will be carried forward as the preferred alternative.

(b) If a new alternative is identified by the Committee, planning must revert back to the appropriate step and recommence so that an Environmental Analysis and evaluation of the new alternative may be completed. Should the Committee identify an additional alternative project, planning must revert to Step 1 and recommence.

STEP 4

4.0 Project Plan

The Class Environmental Assessment for Fishery Reclamation requires that a Project Plan be prepared to: a) guide preparation, implementation, and monitoring; and b) provide a focus for public and government review agencies when responding to the Final Notice (see Step 4.2 below). Additionally, the application to the Ministry of the Environment for a permit to perform a water extermination shall be accompanied by a copy of the Project Plan.

4.1 Project Plan Requirements

(a) After the preferred alternative has been selected by the District Manager, a Project Plan must be prepared by the project co-ordinator. The Project Plan must contain the information specified in Figure 8, Project Plan Requirements.

Figure 8: Project Plan Requirements

1. A statement of the project's purpose;

2. A detailed description of the project including mitigation measures;

3. A map showing the location of the project;

4. The timetable for implementation (treatment, fish stocking, monitoring);

5. A description of the project's significant potential environmental effects as predicted by MNR including, in the case of projects to be carried out on lakes, any predicted significant potential effects on terrestrial and aquatic communities, water quality, and nutrient cycling;

6. In the case of projects involving the use of a pesticide in waterbodies currently or potentially used for swimming, bathing, or human consumption, information about the persistence of the pesticide in the lake or pond to be treated;

(continued)

Figure 8: Project Plan Requirements (cont'd)

7. An identification of human users and potential users of potentially affected ground or surface waters and others likely to be directly affected by the project;

8. An outline of the monitoring program to be carried out for the project including a description of the type of information to be collected;

9. In the case of projects involving use of a pesticide, a description of how potential water users will be made aware of the treatment during and following the treatment phase of the project, including a description of how the area is to be sign posted;

10. In the case of projects involving the use of a pesticide in lakes, detailed information regarding how all outflow from the lake will be presented during treatment and until such time as monitoring indicates that any applied pesticide residues in the waterbody are at a concentration of less than one part per billion, and regarding any potential environmental effects of such prevention of outflow;

11. A description of how an alternative drinking water supply would be provided if such alternative supply is requested.

(b) If it has been determined through Environmental Analysis that the drinking water of any party may be adversely affected and that party has requested an alternative supply, the Project Plan must describe how a suitable alternative drinking water supply will be provided for the period of time the party's supply may be affected.

4.2 Final Notice

(a) After the Project Plan has been prepared, Final Notice must be issued to all parties directly affected by the project and those parties who responded to the First Notice. The Final Notice must contain the following information:

1. A description of project details including the project's location;

2. An indication of the proposed project start date;

3. Notice of the availability for public review and the general contents of the Project Plan and the Environmental Assessment File for the project;

4. Notice of the right to request that the undertaking be subject to an individual environmental assessment using the following wording: "Where you feel, after consulting with Ministry of Natural Resources staff, that serious environmental concerns remain unresolved, it is your right to request the Minister of the Environment require that the project be subject to the formal review and approval process under the Environmental Assessment Act."

5. In the case of projects involving the use of a pesticide in lakes or ponds potentially used for swimming, bathing, or human consumption:

   - information about the possible persistence of the pesticide in the lake or pond to be treated;

   - notice of the right to request notification of (i) project start date, and (ii) when it has been determined that any applied pesticide residues in the waterbody are at a concentration of less than one part per billion or other concentration specified by the Director, Hazardous Contaminants Branch, MOE;

   - in the case of projects which may adversely affect a drinking water supply, notice of the right to request that MNR provide an alternative drinking water supply for the period of time in which the water supply may be affected.

6. Name, address, and telephone number of MNR contact person from whom additional information may be obtained; and

7. A return date for comments.

(b) Note that the normal response time is thirty (30) calendar days. However, if little interest is shown by the public and government review agencies, and no significant environmental effects have been identified, a shortened response period of fifteen calendar (15) days may be specified in the Notice. The reasons for shortening the response period must be included in the Notice.

(c) In the case of projects on lakes, the treatment phase shall not proceed until at least 30 days after the giving of final notice.

4.3 Property Acquisition

(a) Acquisition or exercising of options to purchase property may be undertaken after the period for public response has elapsed.

STEP 5

5.0 Project Plan Review

(a) Once the public review period has elapsed, the project co-ordinator shall describe and review all external comments received in response to the Final Notice. The project co-ordinator should attempt to accommodate all reasonable and realistic concerns of external parties. However, it should be kept in mind that the inclusion of external concerns is limited to the extent that the Project Plan remains technically and economically feasible, and the stated objective of the project continues to be met.

(b) If the concerns expressed by external parties are significant and appropriate preventative or mitigative measures cannot be worked into the existing Project Plan without changing its basic design character, the Project Plan must be redrafted, deferred or dropped. If substantial amendments are made to the Project Plan, further notice must be re-issued to all parties that received Final Notice and, if necessary, any new parties that may be affected by the revised Project Plan.

(c) After all changes and amendments have been made to the Project Plan, and any additional public review period has elapsed, the Project Plan will be reviewed by the District Management Committee. If the Project Plan is approved by the Committee, the District Manager will order a Project Summary Report (see Step 5.1 below) to be prepared and filed with the Ministry of the Environment.

(d) Once all outstanding concerns have been addressed, the final Project Plan must be prepared. The final Project Plan is a working guide and must contain the level of detail necessary to implement or construct the project. Once prepared, a copy of the final Project Plan must be placed on the Environmental Assessment File.

5.1 Project Summary Report

(a) The Project Summary Report and the final Project Plan must be delivered by registered/certified mail to the Director, Environmental Assessment Branch, Ministry of the Environment. Copies of the Report must be distributed to the Regional Director, Ministry of the Environment; Regional Director, Ministry of Natural Resources; and the Director, Policy and Planning Secretariat, Ministry of Natural Resources. A copy of the Project Summary report must also be kept at the District Office in the Project's Environmental Assessment File.

(b) The Project Summary Report must take the form of a written report and contain the section headings and information outlined in Figure 9, Project Summary Report.

Figure 9: Project Summary Report

Section heading	Section Content Requirements
Introduction	A brief statement describing the purpose of the report (e.g. "The following is being submitted as a Project Summary Report as per the requirements of the "Class Environmental Assessment for Fishery Reclamation).
Purpose and Rationale	Clearly state: a) the purpose of the project; b) the reason why the project is being undertaken; and c) the specific objective that is intended to be achieved.
Project Description	Describe: a) where the project will be carried out; b) what will be undertaken; c) how the project will be carried out; and d) when the project will be carried out. A map which clearly indicates the project location and study area boundaries must be provided.
Reason for Selection of the Preferred Alternative	Identify the alternatives which were brought forward and compared to the preferred alternative. Reasons for rejecting those alternatives must be made explicit.
Description of Environmental Effects	Describe all significant environmental effects (positive and negative/direct and indirect) and the mitigation measures designed to lessen those effects. If significant effects may occur which cannot be mitigated, the reasons why mitigation cannot occur must be described.
Response from External Parties	Summarize input and comments from review reviewers and the public. Outline how concerns and comments were responded to.
Monitoring	Describe the steps that will be taken to monitor the environmental effects of the construction, maintenance and operation of the project.

STEP 6

6.0 Project Implementation and Monitoring

Planning is never undertaken as an end in itself but always as a means to an end. The purpose of this step is to implement the Project Plan according to the specifications contained therein; to monitor the implementation so that the capability of mitigation measures may be determined and improved; and through monitoring to ensure that unexpected environmental quality deterioration does not result.

6.1 Project Implementation

(a) All mitigation measures specified in the Project Plan must be undertaken during the implementation phase of the project. Where appropriate these mitigation measures must be carried out according to the requirements set out in the Construction and Mitigation Handbook for MNR Class EA Projects and Part I of this Class EA.

(b) If the work is to be contracted out, the project co-ordinator must ensure that a working agreement is signed between the contractor and MNR which contains provisions assuring that the mitigation measures identified in the project will be carried out.

(c) In the case of projects involving the use of a pesticide in lakes and ponds potentially used for swimming, bathing or human consumption, upon request, any concerned party shall be notified prior to the date of implementation. Furthermore, those same parties shall be notified after the concentration of the pesticide is less than one part per billion or other specified standard.

(d) In addition to any action taken according to sub-section 6.1(c) above, signs shall be posted at appropriate locations (e.g. access points) adjacent to the waterbody to be treated. The signs shall advise against eating fish from the waterbody, swimming in and drinking the water. The signs shall remain in place until it has been determined that the concentration of the pesticide is less than 1 part per billion or other specified standard.

(e) Where a lake reclamation using a pesticide is planned, reclamation may proceed only if:

    (i) all outflow from the lake is prevented during treatment and until such time as monitoring indicates that there are no residues of the applied pesticide left in the waterbody greater than one part per billion or other specified standard.

(ii) the planning process has shown there are no potential, significant negative environmental effects to the lake, or any potential, significant environmental effects to other connected waterbodies caused by the prevention of outflow, and

(iii) there is a Peticides Officer from the Ministry of the Environment present during treatment.

6.2 Project Monitoring

a) Contract specifications must be monitored by the project co-ordinator or other MNR staff by site inspection or other means considered necessary.

(b) Project implementation must be monitored regularly by the project co-ordinator with respect to unanticipated environmental degradation occurring.

(c) Figure 10, MNR Environmental Assessment Monitoring Requirements, presents the criteria against which projects must be monitored.

(d) Monitoring commences with the start of project implementation and continues for the duration specified in the Project Plan. The results of the monitoring plan must be summarized by the project co-ordinator and included in the Environmental Assessment File. In addition, the results of the monitoring program must be provided to the Director, Environmental Assessment Branch, MOE and the Director, Fisheries Branch, MNR.

(e) As cited in subsection 6.1(e) above, signs may not be removed until monitoring indicates that the concentration of the pesticide is less than 1 part per billion. The procedure for determining that the waterbody has detoxified to this level is outlined in Bulletin No. PS 4.03.02 (FiR) found in the Environmental Assessment Procedures Manual.

6.3 Project Completion Notice

(a) After implementation of the project is complete, a Project Completion Notice must be sent to the Director, Environmental Assessment Branch, Ministry of the Environment with copies of the notice circulated to the Regional Directors of MOE and MNR.

(b) The Project Completion Notice is simply a memorandum containing the following information: name and location of the project; project completion and/or operational dates; and name of a contact person to obtain further information.

Figure 11: MNR Environmental Assessment Monitoring Requirements

1. Effectiveness of Environmental Quality Guidelines

   a. List the environmental protection and mitigation measures employed in implementation of the project.

   b. Describe how effective, partially effective or non-effective the measures were in minimizing environmental degradation.

   c. Suggest any improvements to the Environmental Quality Guidelines or Construction and Mitigation Handbook for MNR Class EA Projects.

2. Effectiveness of the Project

   a. What was the objective of the project?

   b. Describe how effective the project was in achieving that objective.

3. Cost of Environmental Protection

   a. What were the costs of implementing the environmental protection and mitigation measures in relation to total project costs?

   b. Suggest any ways in which environmental protection and mitigation could be made more cost efficient.

4. Unanticipated Environmental Effects

   a. What environmental effects, if any, occurred during or after project implementation that were not identified during project planning?

   b. How were those effects dealt with?

   c. How could those effects have been avoided or mitigated if they had been identified earlier?

   d. Suggest ways of avoiding this problem in the future.

5. In all Fishery Reclamation Projects

   a. In the case of projects in lakes, MNR shall, prior to treatment, carry out a lake inventory including a description of water quality, fish species present, and an evaluation of the suitability of the habitat for the fish species to be stocked.

   b. MNR will ensure clean-up of the area following the treatment phase and record the species and numbers of fish removed.

6. In Fishery Reclamation Projects Involving Rotenone

   a. The waterbody will be sampled prior to, during and after treatment to determine the general parameters (temperature, pH, dissolved oxygen, alkalinity) of the water which may influence the lethality of any pesticide to be used and the rate of detoxification.

   b. MNR will test water quality until it establishes that the residues of the applied pesticide left in the waterbody are below one part per billion.

PART III

ADMINISTRATION

ADMINISTRATION

This section, Administration, describes how the Class EA will be managed by MNR. Sections 1.0 and 2.0 below describe how the Policy and Planning Secretariat will maintain and amend the approval of the Class EA. Section 3.0 describes the process MNR staff will follow in the event a request to bump-up a project is made to the Minister of the Environment. Section 4.0 describes the documentation that will be produced through the FEPP. Finally, Section 5.0 generally describes how groups external to MNR will be involved in the planning process.

1.0 APPROVAL PERIOD AND EXTENSION OF APPROVAL

The approval granted to this Class EA by the Minister of the Environment shall terminate five years after the date of granting of approval. Normally, this Class EA would be required to be reviewed, revised and re-submitted for government review and approval within four years of approval.

However, if the Minister of Natural Resources requests, in writing, a waiver of the requirement for re-submission the Minister of the Environment will:

a. Give notice to the public and the government review ministries and agencies of MNR's request to waive the re-submission requirement and invite comment;

b. If, after reviewing comment received, the Minister of the Environment is of the opinion that no major concerns exist, the Minister may permit an extension of the approval for the class environmental assessment for a period of no longer than five years.

If the Minister of Natural Resources determines that an extension is necessary, a request will be submitted for an extension of the approval within three years. Should the request for extension be denied by the Minister of the Environment, the Ministry of Natural Resources will then re-submit a revised Class EA for review and approval within four years of the granting of approval.

2.0 CLASS ENVIRONMENTAL ASSESSMENT AMENDING PROCEDURE

As experience with the application of the Class EA procedures accumulates, it may become evident that the procedures would benefit from some minor adjustments or streamlining. Without an approved mechanism allowing minor changes to occur, the entire re-submission,

review and approval process would be required. Therefore the following process is submitted to enable minor amendments to this Class EA without the necessity of undergoing the formal environmental assessment review and approval process.

The procedure for making a minor amendment to this Class EA is as follows. If MNR determines that an amendment to the Class EA should be made, it will bring the matter to the attention of the Minister of the Environment. If it is determined that the change is necessary and would significantly improve the procedures, the Minister of Natural Resources will request the Minister of the Environment to amend this Class EA accordingly. Requests to amend this Class EA must describe the specific concern, the reason for the concern, the proposed change and how the change will satisfactorily address the concern.

If a requested change is a minor alteration to the procedures described in this document, the Minister of the Environment may make or deny a change without requiring a new Class EA to be prepared. However, if, in the judgement of the Minister of the Environment, a requested change is a major alteration of the existing process the Minister could order the preparation and submission of a new Class EA.

Before making any changes, the Minister of the Environment will provide notice to the public and government review ministries and agencies and allow an adequate time for comment before approving any changes. Based on comments received and the Environmental Assessment Act, the Minister of the Environment may choose to either approve the change or declare the change a new undertaking and order a new Class EA to be prepared and submitted for formal government review and approval under the Environmental Assessment Act.

3.0 PROJECT DESIGNATION OR "BUMP-UP"

A Class EA is a description of the procedures used to satisfy the requirements of the Environment Assessment Act for the projects included as part of the class of undertakings. The Class EA approach is used to deal with projects which have common characteristics, recur frequently and have a generally predictable range of effects. Specific construction, timing and site location information does not need to be known when approval of a Class EA is sought. The Class EA procedures outline the planning process which will be followed and describes the opportunities for public and government review of projects when they are carried out in the future.

Undertakings addressed by this Class EA may be redesignated or "bumped-up" to individual EA status. If any member(s) of the public or government ministry or agency (including MNR) feels that the potential environmental effects of an undertaking addressed in this Class EA will not be adequately evaluated by the procedures described in Parts I and II of this report, a request can be made to the Minister of the Environment to bump-up the project so that it is given individual treatment under the Environmental Assessment Act. By bumping-up a Class EA undertaking, the Minister of the Environment considers the potential environmental effects significant enough to warrant individual treatment under the Environmental Assessment Act.

If a request for bump-up is referred to or received by MNR, the following procedure will be employed:

a. Ministry of Natural Resources field staff responsible for the planning of the project will meet with the party and will attempt to resolve the concern;

b. if the problem cannot be resolved through negotiation with the concerned party, the party will be asked to direct the bump-up request to the Minister of the Environment.

The right of external parties to request the bump-up of a project will be expressed in all notices given by MNR.

In the event that a written request is made by any party to the Minister of the Environment that an individual Environmental Assessment be submitted for a Fishery Reclamation project, the treatment phase shall not proceed until:

a. the request is withdrawn;

b. the Minister of the Environment has advised MNR in writing that an individual Environmental Assessment is not required, or

c. an individual Environmental Assessment has been submitted for the project and accepted and the project has been approved under the Environmental Assessment Act.

4.0 PROJECT DOCUMENTATION

4.1 Project Summary Report

As indicated in Step 5 of the Field Environmental Planning Procedure, once all project details have been finalized a Project Summary Report must be written and filed with the Director, Environmental Assessment Branch, Ministry of the Environment (MOE). Copies of the Project Summary Report must also be sent to the Regional Director, MOE; Regional Director, MNR; and the Director, Policy and Planning Secretariat, MNR. The content of the Project Summary Report is described in Part II, Step 5.1 above.

4.2 Environmental Assessment File

Detailed information regarding the project, project planning and environmental effects will be kept in MNR district offices and will be made available for inspection to the public, government agencies and ministries, and other interested parties upon request. The file will contain the following information:

1. The Project Proposal;
2. Comments made by the public, government ministries and other interested parties;
3. Minutes of meetings;
4. Environmental Checklist;
5. The Project Plan;
6. The outline of the monitoring system to be carried out;
7. The results of the monitoring program;
8. Copies of all notices;
9. The Project Summary Report; and
10. Project Completion Notice.

The file is to be kept active for the time period specified in the monitoring program outline.

5.0 PUBLIC AND EXTERNAL AGENCY INVOLVEMENT

As stated in the Introduction, one of the goals of this Class EA is to provide opportunities for the involvement of the public and external agencies in the planning of MNR's projects. To achieve this goal, the following describes how MNR staff will integrate public and external agency involvement in the Field Environmental Planning Procedure presented in Part II of this document.

5.1 First Notice

The first point of contact with the public and parties external to MNR occurs with the issue of first notice. Refer to Figure 1 for timing of the notice. First notice is given to all government ministries and agencies whose interest may potentially be affected by the project, and those agencies requesting first notice.

Normally the general public and interested parties will be notified of the project by way of notice in the local media or other appropriate means as determined by the District Manager. Other parties and/or individuals who may be directly affected by an alternative (if known) will be contacted directly by MNR.

The purpose of the first notice is twofold. First, the notice is intended to inform the public and government agencies at an early stage in the process that a project is being proposed and that the public and government groups have the opportunity to become involved in the planning of the project.

Secondly, through the first notice MNR will request that the public and government agencies review the proposal being brought forth and comment on how the proposal affects their respective interests. Comments regarding improvements to the proposal will also be welcomed. Using information provided by the initial review, MNR may amend or redraft the project proposal as required. Comments provided by external agencies in response to the effects of the proposal on their program interests will be used by MNR staff in completing the Environmental Analysis section (Part II, Step 2) of the Field Environmental Planning Procedure. Further, comments may also be used by MNR in the evaluation and project selection stage (Part II, Step 3).

5.2 Optional Public/External Agency Involvement

Most of the fishery reclamation projects undertaken by MNR which are included in this Class EA involve small self contained waterbodies and are unlikely to generate significant adverse environmental effects. However, in situations where this is not the case or when public concern arises about a MNR project, the District Manager may determine additional opportunities for public and external agency involvement to be necessary. Additional opportunities for external involvement may be to further refine the project proposal, elaborate on the potential environmental effects which may affect external interests, or to clarify MNR's proposal to external parties.

External involvement at this stage will occur as part of Step 2, Environmental Analysis (see Figure 1). The method of external involvement is to be determined by the District Manager based on the scale of the project and response to the first notice. If only a few concerns are received MNR may contact those parties directly. If much public or agency concern exists, open houses, public meetings or meetings with review agencies may be held.

5.3 Final Notice

After the project plan is completed (Step 4), those parties directly affected by the project plan and those parties who responded to the first notice will be notified that they have the opportunity to review the Project Plan. This final notice will represent the last opportunity for the public to exercise their right to request a bump-up.

In some instances, where the scale of the project is small and limited response to the first notice was received from external parties, a shortened response time may be indicated for the final notice.

5.4 Project Completion Notice

When project implementation is complete, the Director, Environmental Assessment Branch, MOE will be notified by letter of project completion. Copies of the Project Completion Notice will be distributed to the Regional Director, MOE and Region Director, MNR.

APPENDICES

APPENDIX 'A'

EMERGENCY SITUATION - GENERAL GUIDELINES

APPENDIX A

EMERGENCY SITUATION - GENERAL GUIDELINES

An emergency situation may exist by reason of:

i) danger to the health or safety of any person;

ii) impairment or immediate risk of impairment to the quality of the natural environment; or

iii) injury or damage or immediate risk of injury or damage to any property or to any plant or animal life.

1. In such instances the Regional Directors of MNR and MOE should determine an appropriate course of action.

2. After the emergency situation has been dealt with, the Regional Director of MNR is required to notify the Environmental Assessment Branch and appropriate Regional Director of MOE to indicate:

   - why the works carried out were necessary;
   - whether or not future work will be undertaken, and
   - how any future work will comply with EA approval.

APPENDIX 'B'

INTEGRATING THE CLASS EA PLANNING PROCESS WITH WORK PLANNING

APPENDIX 'B'

Ministry of Natural Resources
Ontario

Subject		Bulletin No. Br. Alpha Code	Consec. No. by Fiscal Year
INTEGRATING THE CLASS EA PLANNING PROCESS WITH WORK PLANNING		PS 4.03.01	(WkP)
Compiled by - Branch	Section	Date Issued	Page
POLICY AND PLANNING SECRETARIAT	LAND USE PLANNING	Jan. 15/85	1 of 1

There are three options for integrating the Class EA planning process with work planning. Any one of these options, or combination of options may be used in planning a project. It should be kept in mind however, that the planning requirements of the Class EA's are separate and distinct from those of the work planning program.

1. Planning before Funding

   - o most appropriate for projects certain to be funded
   - o involves the completion of the Class EA process at the same time as preparing the work plan for approval and funding
   - o while there is no specified expiry time for project implementation once the Class EA planning procedure has been completed, such planning should be undertaken within a reasonable time frame (e.g. not several or more years ahead of time).

2. Planning after Funding

   - o most appropriate for projects which are small and uncontroversial (less study required, less time spent dealing with public concerns) or which receive unanticipated or short-term funding (e.g. DREE, MNA)
   - o planning time may be shortened based on the significance of the project and/or if there are no affected parties or respondents to first notice (final notice would not be required) or no controversy (less than 30 days may be acceptable for final notice response time)
   - o the Class EA process is totally undertaken between funding allocation and construction

3. Partial Planning

   - o appropriate for any project except where funding is unanticipated and available on a short-term basis only
   - o the Class EA procedure could be integrated with work planning in various ways, depending upon the project

     e.g. complete Step 1 (Project Proposal) only, until funding received

     e.g. complete Steps 1, 2 and 3 (Project Proposal, Environmental Analysis, Evaluation/Selection) leaving the detailed project planning until funding is received

     e.g. planning could be split over two years for long-range project

Expiry Date

1397 (05/80)

APPENDIX C

APPLICATION FOR A PERMIT TO PERFORM

A WATER EXTERMINATION

Ministry of the Environment
Ontario

Application for a Permit to Perform a Water Extermination — Instructions

Remove Instruction Sheet and Answer All Questions Where Applicable on the Application

1 Name and address — refers to property owner. Address given should be that where extermination is to be carried out.

2 Name of pesticide — refers to the commercial or trade name under which the pesticide is sold, i.e., Reglone A, Aqua Kleen, Abate Read the label of the pesticide carefully. The information for items 3, 4, 5, 6 and 7 can be found on the label or from the information enclosed with this application.

3 Formulation — refers to the form in which the pesticide is sold, i.e., wettable powder, emulsifiable concentrate, granules, dusts or solutions.

4 Active Ingredient — refers to the portion of a pesticide formulation that is responsible for the pesticide effects, i.e., the active ingredient of Reglone A is diquat and the active ingredient of Aqua Kleen is 2,4-D ester. If unknown, leave blank.

5. Concentration — refers to the amount of active ingredient in a given weight or volume of a pesticide. If unknown, leave blank.

6 Rate — refers to the amount of active ingredient applied to a unit area, such as gallons per acre or pounds per acre.

7. Area to be treated — refers to the length and width of the area and average water depth. Please give units in which measurements are made (e.g ft, yds, metres).

8 Name of pest — specify one of the following:

i) Algae — filamentous or chara sp.
ii) Submergents — tape grass or other. Specify, if possible.
iii) Emergents — water lilies, duckweed, cattails or other
iv) Pest fish — specify
v) Insects — specify
vi) Other — specify

9 Date of application — refers to the 10 day time period in which treatment will be undertaken.

10 Signature of Applicant — where the property owner is to apply the pesticide, he should sign; or where a commercial applicator is to apply the pesticide, the representative of the company should sign.

Ensure that two maps are attached to the application.

(a) one will specify the location of the property, e.g., give complete directions from the nearest main road and water access deta In addition, a description of the cottage should be given.

(b) a map illustrating the features of the property — specify length, width and depth of area to be treated, location relativ neighbouring properties and any extenuating circumstances such as water currents, islands, logs, water intake, docks e

Ministry of the Environment
Ontario

Application for a Permit to Perform a Water Extermination

Form 7

Please Print Clearly. Attach Map of the Treatment Area and Indicate Access Route

1. I, _____ (Name of Applicant) Telephone _____ (Home) _____ (Business)

of _____ Home Address — P.O. Apt. No. Number and Street _____ City, Town, etc. _____ Postal Code

apply for a permit to purchase and use:

2 Name of Pesticide	3 Formulation	4 Active Ingredient	5 Concentration	6 Total Qty. To be used

7 Rate	8 Area to be Treated (Length, Width and Average Depth)

Name of Body of Water (Specify)	Lot	Conc	Township	County, District or Regional Municipality

9 Name of Pest	10 Date of Application	Number of Applications	Type of Equipment

Where a stream or river is to be treated for control of blackfly larvae, indicate:

14 Streamflow	15 Width	Average Depth	Speed of Current (Ft. per Second)

This permit is a renewal: ☐ No ☐ Yes

Years of Previous Permit(s)	Permit Number(s)

Is water in the vicinity of the treated area used for:

☐ swimming ☐ irrigation of crops ☐ fishing (specify) _____
☐ drinking water ☐ livestock watering ☐ other (specify) _____

Have all adjacent owners, lessees or organizations been notified and have they all agreed to the proposed treatment, realizing that their use of the water may be temporarily restricted? ☐ Yes ☐ No

Type of sediment: ☐ Sand ☐ Gravel ☐ Mud or Other (Specify) _____

Is the treatment to be undertaken by an exterminator? ☐ Yes ☐ No

State: 1. Exterminator's Licence Number _____
2. Company Name _____ Licence Number _____
3. Company Address _____ Telephone _____

Date _____ 19____ Signature of Applicant _____

(Do Not Complete — For Ministry Use Only)

Permit No. _____

Permission is hereby granted under the Pesticides Act, 1973 and the Regulations to perform a water extermination.

☐ in accordance with the above application or ☐ with the following amendments

_____

_____

_____

Date _____ 19____ Signature of Director _____

APPENDIX D

MINISTRY OF NATURAL RESOURCES'

LAKE SURVEY

Lake surveys, as conducted by M.N.R., are designed to provide basic knowledge concerning the chemical physical and biological conditions of a lake. The data collected are considered along with other factors when making management decisions. Procedures for conducting a lake survey are presented in the M.N.R. publication entitled "Manual of Instructions, Aquatic Habitat Inventory Surveys."

A completed lake survey consists of the following items:

1. Lake Survey Summary Form (SF133)
2. Outline Map
3. Transect Map
4. Contour Map
5. Physical Feature Map
6. Field Collection Records
7. Netting Records
8. Field Notes

Ontario Ministry of Natural Resources

Lake Survey Summary
Aquatic Habitat Inventory

A. Identification Key
M.N.R. District No. ___ Watershed ___
Lat. ___ ° ___ Long. ___ ° ___ Survey Year 19 ___

B. Location Data — Gazetteer Name | Topographic Map Name | Local Name

County or Judicial District | Township | Lot | Concession

Name and No. of Topo. Map | Watershed Code | Elevation ___ m

Access /

C. Water Chemistry Data

Sta. No ___ of ___ Secchi ___ . ___ m Cloud ___ % ___ hrs. Date — Day ___ Mo. ___ Year 19 ___

Surface — Calm ☐ Rippled ☐ Wavy ☐ Rough ☐ Thermocline From ___ . ___ m To ___ . ___ m

Colour — Colourless ☐ Yellow/Brown ☐ Blue/Green ☐ Air Temp. ___ . ___ °C No Thermocline ☐

Depth m	Temp. °C	D.O. mg/l	pH	Alk. mg/l	T.D.S. mg/l	CELL T °C	Conductivity umhos/cm
00							
01							
02							

Numbers Only ___

Checking Only [X]

Test Time From ___ hrs. to ___ hrs.

D. Basin and Terrain Characteristics

Timber Types

Below B.M. — ___ . ___ m Fluctuation ___ . ___ m No. Resorts ___ Flat ___ . ___ %

Max. Depth ___ . ___ m Mean Depth ___ . ___ m No. Cottages ___ Rolling ___ . ___ %

Perimeter ___ . ___ km Is. Shoreline ___ . ___ km Crown ___ % Hilly ___ . ___ %

Surface Area ___ . ___ ha Patent ___ % Mntnous ___ . ___ %

Volume — ___ . ___ x10⁴m³

S.D.F. — ___

Survey Date ___ day ___ month ___ 19 ___ yr. To ___ day ___ month ___ 19 ___ yr. Investigator(s)

Sheet ___ of ___

1422 (01/78)

E. Physical Data

Inlets

	No.	m^3/s
Perennial		
Non-Perennial		

Outlets

Perennial		
Non-Perennial		

Comments

Soil Types

	Sh. line	BTM
Clay	-%	-%
Sand	-%	-%
Gravel	-%	-%
Bldr.	-%	-%
Rock	-%	-%
Silt	-%	-%
Detr.	-%	-%

F. Fish

Inhabiting Species

Code No.	Code No.	Code No.

Aquatic Vegetation

☐ Present ☐ Absent Total Area . ha

Comments (re. Aquatic Vegetation)

Plantings

19	Sp. No.	Amount and Class

Bench mark description and site location

G. History and Comments

Dams	Food
Pollution	Disease

H. Recommendations

Management classification by position

Fish age class ÷ EE — eyed eggs, Fy — fry, Fg — fingerlings, Yg — yearlings, II — age 2, IV — age 4, etc., Ax — adult age unknown, FC — fin clip.

APPENDIX E

ENVIRONMENTAL ASSESSMENT FILE

APPENDIX E

ENVIRONMENTAL ASSESSMENT FILE

The Environmental Assessment File is an integral part of the documentation requirements for MNR's Class EA for Fishery Reclamation. The File must remain in the district office and made available upon request to any party who may wish to view it. The content of the File must be kept up-to-date in an orderly fashion. As the content of the File will be used to support MNR's position on any issue connected with a project, it is imperative that the items listed below be included in the File.

Step 1: Project Proposal
- o Purpose and Rationale
- o Project Alternatives
- o Preliminary Evaluation of Alternatives
- o Design Alternatives
- o Approval to Proceed (MNR)
- o First Public Notice

Step 2: Environmental Analysis
- o Environmental Checklists
- o Written Review Comments
- o Record of Verbal Transactions
- o Environmental Analysis Summaries
- o Additional Public Consultation

Step 3: Evaluation of Alternatives
- o Reasons for Selection of Preferred Alternative
- o Reasons for Rejection of other Alternatives

Step 4: Project Plan
- o Preliminary Project Plan(s)
- o Final Public Notice

Step 5: Project Plan Review
- o Written Review Comments
- o Record of Verbal Transactions
- o Final Project Plan
- o Project Summary Report

Step 6: Project Implementation
- o Project Completion Notice
- o Results of the Monitoring Program

APPENDIX F

FACTS ABOUT ROTENONE AS A FISH TOXICANT

FACTS R'

Ontario

Ministry of the Environment
Hon. Jim Bradley
Minister

Rod McLeod, Q.C.
Deputy Minister

about pesticides

NUMBER: 40-01-19
DATE: SEPTEMBER 1983

ROTENONE AND ITS USE AS A FISH TOXICANT

Rotenone is a botanical compound obtained by crushing or powdering the roots of Derris plants (related to peas and beans). Powdered derris roots contain between 4 and 5 percent of rotenone. It is primarily employed as an insecticide, but is also used as a fish toxicant. Rotenone is absorbed through the gills of the fish into the bloodstream and thence carried to the tissues.

There appear to be two ways in which rotenone works. First, it causes the capillaries in the gills to constrict, thus reducing the amount of oxygen that can be absorbed. Secondly, it inhibits the respiration of the cells of the body.

TOXICITY:

The active material is extremely toxic to fish, slightly toxic to birds, and moderately toxic to mammals. However, it is worth bearing in mind that it is very toxic to hogs, and water from a treated pond or lake may be injurious to them.

FIRST AID:

If rotenone is swallowed, cause vomiting by giving the patient syrup of Ipecac, and repeat until vomit fluid is clear, and call a physician. If on skin, wash with soap and water. If in eyes, flush with plenty of water for 15 minutes and obtain medical attention.

PRECAUTIONS:

Keep out of reach of children. May be harmful if swallowed or inhaled. Avoid breathing dust or spray mist. Avoid contact with skin, eyes and clothing. Wash after handling and before eating, drinking, or smoking. Do not contaminate food or feed. Rinse sprayer into treated water or empty residue into a hole in the ground.

DISPOSAL:

Crush or puncture the empty container and bury under at least 45 centimetres of soil away from a water table or dispose in an approved land fill site.

...../2/.....

PERSISTENCE IN ENVIRONMENT:

A number of factors influence the rate of decomposition of rotenone. It may persist at toxic levels for many months in cold, very soft water of oligotrephic lakes, in northern areas of the province.

The use of rotenone as a fish toxicant is subject to the possession of an aquatic nuisance control permit, obtainable from the Commercial and Agricultural Chemicals Section, Ministry of the Environment, 135 St. Clair Avenue West, Suite 100, Toronto, Ontario, M4V 1P5.

FORMULATION:

5% Wettable Powder. Recommended rate of application:
1.5-3.0 ppm product (0.07-0.15 ppm a.i.) in the total volume of water.

FACTORS AFFECTING ACTIVITY:

A number of factors affect the efficiency of rotenone as a fish poison.

1. Kinds of Fish:

   some species appear to be more resistant to its effects.

2. Size of fish:

   large fish show greater resistance than small individuals.

3. Water temperature and oxygen concentration. These two factors work together. A low water temperature reduces the respiration rate of fish so that they need less oxygen, at the same time the oxygen concentration in water increases as the temperature falls. The combined effect is to reduce the immediate impact of rotenone, although it will kill the fish in the longer term.

4. Acid/Alkali Balance of Water (pH): it is possible that the fish are killed more quickly in acidic water than in alkaline, although the evidence is unclear.

5. Turbidity: is, in part, due to phytoplankton and suspended particles of clay and organic matter. This suspended material adsorbs rotenone from the water and renders it inaccessible to fish. However, some species of fish, for example: Common White Sucker, Brown Carp, and Goldfish, are able to survive better under conditions of low oxygen concentration, higher temperature and greater turbidity than small-mouth bass and yellow perch, and much better than Brown, Speckled, Lake, and Rainbow Trout.

6. Aquatic Vegetation: rotenone may be adsorbed on to the leaves of submerged aquatic vegetation, preventing it from acting as a fish toxicant.

...../3/.....

7. Ability to Place Rotenone in Vicinity of Fish: a body of water may appear uniform from top to bottom, and thus it might be assumed that rotenone applied to the surface would spread throughout the whole volume. During early spring and in fall this may be true since the weather is cool and winds mix water quite efficiently. However, during the hot summer the surface of the water warms up, and "floats" as a stable, less dense layer on the deeper, cooler, and more dense water mass. The boundary between the two water masses is known as the thermocline. Under these conditions, little, if any, mixing occurs, and rotenone applied to the surface remains there. To obtain good distribution of the material in water more than 4.7 to 6.3 metres (15 to 20 feet) deep, it is necessary to pump the chemical down through a weighted hose, or to treat the water in very early spring or in fall.

ESTIMATING REQUIREMENTS:

1. Determine the size of the lake in terms of cubic-metres of water to be treated. From a map or by actual measurement determine the surface area of the lake (1 hectare = 10,000 square metres). Multiply the number of square metres by the average depth (in metres). This gives the number of cubic-metres of water in the lake.

2. Determine the amount of rotenone required. Chub, suckers and other coarse fish are readily killed with 1.5 ppm product, but catfish, bullheads, and carp are considered to be more difficult to kill, and may require 3 ppm product. To calculate the amount of rotenone product required, divide the total volume of water in cubic metres by 1,000 and then multiply by the number of kilograms required per 1000m .

METHODS OF APPLICATION:

Various methods of application are recommended and the one chosen depends local conditions and availability of equipment. Local conditions would include depth of water, the presence or absence of thermocline barriers, the fish problem (can be determined by gill netting), feeder streams, water temperature, pH and hardness. Because of these variables, it is recommended that the user consult the Ministry of the Environment for advice and guidance.

Before application, the area to be treated should be clearly marked and the size of the area determined. Large areas should be clearly marked off in a 3 metre grid for accurate treatment.

1. Burlap Bag: for small applications and limited resources, this method is suitable for shallow water. Place the appropriate amount of Rotenone Fish Poison in a jute bag. Tow this behind an outboard boat followed by another outboard boat to help mix the material. Start at the deepest part of the lake or area and treat towards the shallows. Run the boat in diminishing circles around the lake or area, repeating until all the powder is used. The shallow bays or lake margins should be treated by hand using a hand duster or backpack sprayer. The spray mixture should be 1 kg of rotenone product in 10 litres of water with frequent agitation. Apply as a coarse spray or stream.

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2. Boat Bailers: The Venturi-type boat bailer, either built into the boat, or attached to the cavitation plate of the outboard motor, can be used. the output of the bailer, at a given speed, must be calibrated before use. Prepare a rotenone and water mixture in a 20 litre pail by mixing 2 kilograms of rotenone fish poison with water up to the 16 litre level. Maintain agitation while applying the mixture. The same technique can be used to prepare larger containers of mixture. Continuous agitation of the mixture is important since the Rotenone will settle quickly to the bottom of the container.

3. Sludge Pump: this method is self-sufficient with the outlet hose trailing in the water and weighted at the end to achieve the desired depth. Prepare a Rotenone and water mixture by mixing 1.25 kilograms of rotenone fish poison with 20 litres of water.

NOTE: Only the sludge pump method is suitable for treating below a thermocline barrier since the hose end can be weighted to sink below the barrier.
It may be necessary to treat only a portion of a body of water which certain undesirable fish are known to frequent. However, undesirable not controlled by the treatment will reinvade the treated area.

TREATING INLET STREAMS:

Treating inlet streams may be necessary if coarse fish are moving up the stream in their natural course of existence. As for other treatments, a permit is required and the Commercial and Agricultural Chemicals Section, Ministry of the Environment, must be contacted. Careful planning should be done to co-ordinate and avoid spawning times of desired species.

NOTES ON APPLICATION PRACTICES:

Before the use of rotenone a netting programme should be carried out to:

a) remove as many fish as physically possible, and

b) to ascertain the numbers of each species of fish.

Treatment should preferably be carried out in the fall rather than in the spring. However, since the rotenone may not have been completely biodegraded over winter, it is a wise precaution to lower bioassay cages containing live fish to deep parts of the lake before restocking is begun. Application should be heavier in areas where springs feed into the lake or pond, and where there is dense vegetation or large quantities of organic material. Springs will dilute the rotenone, and the organic matter will adsorb the poison rendering it ineffective.

To prevent oxygen depletion at deeper levels, as many killed fish as possible should be removed from the water shortly after the application of rotenone, and buried in the same manner as the empty containers.

Potassium permanganate can be used to detoxify residues in outflow water before it passes downstream.

Activated charcoal will remove rotenone from water being used for drinking.

Ministry of Natural Resources
Ontario

FACT SHEET

August 1987

LAKE RECLAMATION AND THE ROLE OF ROTENONE

Sport fishing is a favorite pastime for thousands of people in Ontario. It's not only a relaxing hobby; it's also a big business for this province.

In 1985, Ontario anglers alone spent more than $1.7-billion on their favorite sport, and that doesn't take into account the more than 600,000 visitors who come to Ontario every year to fish.

For tourism, for business, for personal recreation, it makes good sense to preserve and protect Ontario's fisheries resources.

Lake Reclamation

- People inadvertently introduce other species into lakes and rivers -- by emptying bait buckets, for example. Some of these bait fish species eat sport fish such as brook trout, walleye, and rainbow trout, or compete with them for food.
- Fishing pressure can also lead to a decline in desired fish species, or there may be disease problems in fish populations or damage to habitat that favors less desirable species.

This is where fisheries management comes in, giving Nature a helping hand to restore the sport fishing potential of a lake or pond. Lake reclamation is one way the Ministry of Natural Resources rehabilitates a body of water, returning to it the types of fish that produce special kinds of recreational opportunities.

There are three methods of controlling less desirable fish species and encouraging the expansion of sport fishing.

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Control Methods

1. Physical control might involve lowering water levels to allow undesirable fish types, such as suckers, chub and stunted yellow perch to be captured and removed. This is very expensive and poses a threat to wildlife habitat on or near the shoreline. It also temporarily affects water recreation and enjoyment of shoreline property. Similarly, physical control by netting less favored fish types is time-consuming, expensive and only partially effective, since there are areas of lakes and ponds that are difficult to reach. The net result is that not all the fish are captured and problems are likely to recur.
2. Biological control means introducing predator fish to reduce the unwanted species. However, suitable predators cannot always be found to match the habitat of the target fish. Predator fish have also been known to affect desired and less desired species alike.
3. Chemical control means, in practice, using a product called Rotenone, since it is the only one approved under the Ontario Pesticides Act, administered by the Ministry of the Environment.

What Is Rotenone?

- Rotenone is a naturally-occurring element. Made from Derris root, it has been used for centuries by the natives of South America as a means of catching fish for food.
- It is used by gardeners and orchard operators as a natural control product to protect plants from insects and disease and is recommended by The Encyclopedia of Natural Insect and Disease Control.
- Rotenone is used by fisheries management agencies throughout North America to restore lakes for fishing.
- The Ministry of Natural Resources has used it to control unwanted fish species for the past 20 years.

How Do We Use It?

- Rotenone is applied by a licensed applicator, as required by the Ontario Pesticides Act. In the case of lake reclamation, an inspector from the Ontario Ministry of the Environment must be present during application.
- The product itself has been registered by Agriculture Canada, with the concurrence of the Canada Department of Health and Welfare.
- Rotenone is a selective product; it only affects gill-breathing aquatic animals. Recovery of the lakes treated is very rapid and fish can usually be restocked within seven months. Normally, a lake is treated in September or October and the fish species desired are introduced the following spring.
- Without the use of Rotenone, there would be a drastic reduction in the production of walleye around the province and a significant drop in the numbers of brook and rainbow trout, with a matching decline in tourism and recreation.

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Public Consultation

- The use of Rotenone in lake reclamation is part of the Class Environmental Assessment that must be completed and approved by the Ministry of the Environment, before reclamation may proceed.
- This treatment method is also spelled out in Fisheries Management Plans, which receive widespread public comment and are subject to local government approval. This technique is also part of the Community Fisheries Improvement Program (CFIP), a co-operative effort of the Ministry of Natural Resources and local groups around the province to let local people take part in improving their local fishery.

Lake reclamation allows one kind of fishing that's in great demand and, by boosting the fishery on lakes where there is good public access, we can protect more sensitive lakes from the threat of too much fishing.

One of the reasons why the anglers of Ontario supported the establishment of a resident fishing licence was so that the money raised could be put back into improving Ontario's sport fishery.

Lake reclamation is a tool to help make this happen.